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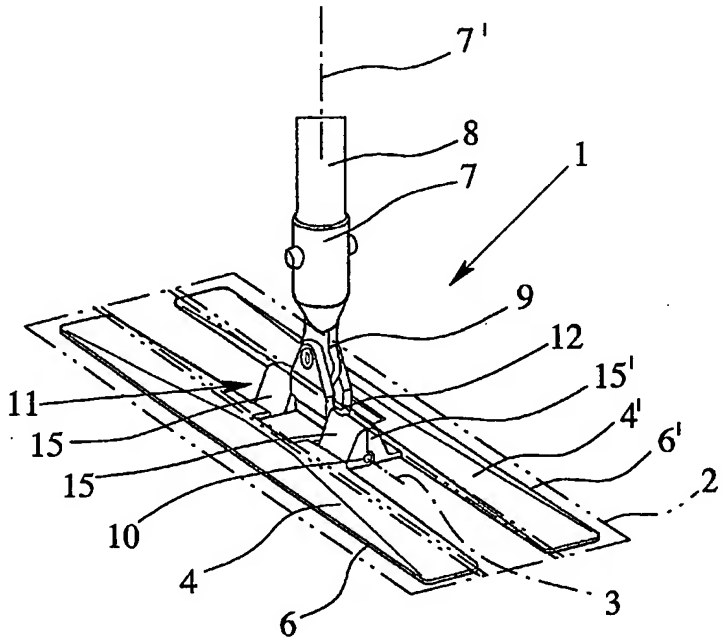
(54) Title: MOP HOLDER FOR MOUNTING A MOP COVER



(57) Abstract: The invention relates to a mop holder for mounting a mop cover, comprising at least two elongated wings (4, 4') hinge-connected together either directly forming a single folding axis (3) or indirectly forming more than one folding axis, wherein the wings (4, 4') form wiping surfaces for cooperation with a mop cover (2) in an operative position of the wings (4, 4'), a handle holder (7) and/or handle (8) hinge-connected to the wings (4, 4') by means of a swiveling means (10), de fining a swiveling axis (10% which extends essentially parallel to the folding axis (3) or folding axes of the wings (4, 4') at least in the operative position of the wings (4, 4'), a detachable connecting means (11) for fixedly holding the wings (4, 4') in their operative position, and a detaching means (12) for detaching wings (4, 4') to release them into a fold-away release position. It is improved in that the handle holder (7) or the handle (8) is attached to the swiveling means (10) so that the longitudinal axis (7') of the handle holder (7) and/or the handle (8) in an upright position thereof is oriented essentially per pendicular to the folding axis (3) or folding axes of the wings (4, 4), the detaching means (12) is positioned on the handle holder (7) or the handle (8) and the detaching means (12) interacts with the wings (4, 4') in a way that abruptly twisting the handle holder (7) and/or the handle (8) about the longitudinal axis (T) thereof detaches the detachable connecting means (11) due to the inertia of the wings (4, 4') and releases the wings (4, 4').

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SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

Mop Holder for mounting a Mop Cover

The invention relates to a mop holder for mounting a mop cover comprising the features of the introductory part of claim 1.

Traditional mop holders for mounting a mop cover are comprising an elongated frame with two wings hinge-connected together either directly forming a single folding axis or indirectly through a hinge plate forming more than one folding axis and a handle holder hinge-connected to the wings and/or the hinge plate by means of a swiveling means. The handle holder comprises a universal joint and forms a socket for mounting a handle (US 4,881,290 A). However, it is likewise possible to directly mount the handle to the mop holder without a separate handle holder. Nevertheless, most common is a handle holder forming a socket for removably attaching a handle. This is the same for the invention, too.

In above-mentioned general prior art, the elongated frame is open and made from metal wire. A plate member on the upper side of each frame-like wing provides a wiping surface for cooperation with the mop cover in an operative, i.e. extended or straight position of the wings.

Detachable connecting means are fixedly holding the wings in their operative, here extended position. The connecting means here have the form of rollover lips cooperating with the elastically deformable frame parts of the wings. All in all the swiveling axes of the swiveling means here are oriented in the transversal direction of the mop holder so that insertion pockets on a corresponding mop cover are positioned on the transversal edges thereof. This is the traditional construction and orientation (see also DE 34 11 858 C2).

Another, more recently marketed mop holder (US 5,864,914 A) for mounting a mop cover comprises an elongated frame with two wings hinge-connected together indirectly through a hinge plate with folding axes oriented in the longitudinal direction of the mop holder. Accordingly, the mop cover has insertion pockets provided on longitudinal edges thereof for introducing longitudinal edge sections of the wings of the mop holder. Here are additional detaching means for detaching the wings so that the wings are released into a foldaway release position. Those detaching means are provided by inclined surfaces of projections and

depressions interacting in such a way that manual pressure on the detaching means releases the wings.

In the above referenced prior art, the detachable connecting means are described as catch, clamping, Velcro (burr), or magnet means.

Now, in view of the foregoing, the present invention's object is to improve a mop holder for mounting a mop cover regarding convenient operation with the aim that touching the mop holder and mop cover for mounting or dismounting of the mop cover is no longer necessary.

Above mentioned object is solved by a mop holder for mounting a mop cover comprising the features of the generic part of claim 1 and additionally comprising the features of the characterizing part of claim 1.

The invention is directed to a specific design wherein the detaching means interacts with the wings in a way that abruptly twisting the handle held in the handle holder about the longitudinal axis of the handle detaches the detachable connecting means due to the inertia of the wings.

In fact, a short swift turning of the handle releases the wings to fall down into the release position. In this position the mop cover is simply falling down from the wings or, if attached to at least one wing by means of a Velcro connection, it can be released from this wing just by stepping on the partly released mop cover and pulling the mop holder from the mop cover.

In order to attach the mop cover or a new mop cover to the mop holder the mop holder with the wings in the release position is positioned on top of the mop cover and the handle is pushed downwardly towards the mop cover so that the wings reach their operative position where the detachable connecting means then interacts to fixedly hold the wings in their operative position.

The operative position of the wings can be an extended or straight position as in US 4,881,290 A or a folded up position with two sides of the mop cover as in US 5,864,914 A.

The release position of the wings is preferably a position with a specific maximum angle between the wings so that re-positioning on top of the mop cover will easily spread the wings again into their operative position or at least into an intermediate position if an operative position as in US 5,864,914 A is provided.

In a particularly preferred version of the mop holder, the handle holder (or the handle) is attached to the swiveling means by means of a swivel head, which has a swiveling axis essentially perpendicular to the swiveling axis of the swiveling means. The swiveling axis of the swivel head here in the upright position of the handle is more or less identical with the longitudinal axis of the handle holder or, in normal operation, the handle attached to the handle holder.

In a particularly preferred embodiment the wings are provided with preferably upwardly extending detaching sections, and the detaching means comprises at least one detaching element extending between the detaching sections of the wings in their operative position. In a preferred embodiment, the detachable connecting means is integrated into the detaching sections of the wings. In fact, the magnet and metallic counter-plate may be easily located within the detaching sections of the wings.

An all-plastics construction or at least mainly plastics construction of the mop holder is preferable from a manufacturing standpoint. Preferably the wings and the corresponding detaching sections are each made as a one-piece member from plastics.

It is particularly simple as a construction if the swiveling means is forming exactly one folding and swiveling axis for both wings and the handle holder. However, the swiveling means may also be part of a hinge plate with a number of at least two or even more axes provided by the hinge plate.

A preferred embodiment of the invention shows a mop holder where the folding axis or axes is/are oriented in the longitudinal direction of the mop holder. However, the inventive concept of a particularly simple detaching means allowing for touch free use of a mop holder and mop cover is equally applicable where the axis or axes is/are oriented in the transversal direction of the mop holder.

The inventive system with an inertia-based detaching means is particularly advantageous in connection with a magnetic connecting means. The reason is that a magnetic connecting means can be detached by a detaching means in a particularly simple and predictable way.

Finally, the opening angle of the wings in their release position should be an angle that allows easy return of the wings to their operative position or at least an extended or straight position as an intermediate position before folding the wings into their final operative position. Such kind of fixed angle position can be achieved by an abutment means on the wings.

Now, further features, advantages and applications of the invention can be obtained from the following detailed description of preferred embodiments of the invention taken in conjunction with the accompanying drawings. In the drawings

Fig. 1 is a schematic view of a first embodiment of a mop holder for mounting a mop cover which is just indicated in dashed lines below the mop holder, here wings of the mop holder are in their operative position,

Fig. 2 the mop holder of Fig. 1 with the wings being in their fold-away release position, a handle and handle holder in a detaching position,

Fig. 3 a second embodiment of a mop holder according to the invention in a partly sectional, enlarged and simplified view in the area of a lower section of the handle holder,

Fig. 4 a third embodiment of a mop holder according to the invention in a view similar to Fig. 2 with the wings being in their fold-away, release position.

The mop holder 1 that can be seen in Fig. 1 of the drawings is intended for mounting a mop cover 2. This mop cover 2 is indicated in Fig. 1 of the drawings in dashed lines and below the mop holder 1. The mop holder 1 has the form of an elongated frame and comprises here two wings 4, 4' hinge-connected together. In the present embodiment each wing 4, 4' is formed plate-like from plastics. How-

ever, as indicated before, the prior art describes also frame-like wings with or without additional covering. In the present embodiment, the two wings 4, 4' are hinge-connected together, forming a single folding axis 3. However, it is equally possible and is well known from prior art to connect the wings 4, 4' forming more than one folding axis, namely by means of a separate hinge plate or the like.

Each wing 4, 4' includes an edge section on a longitudinal edge 6, 6' thereof. This corresponds to the embodiment of Fig. 1 and 2 where the folding axis 3 is oriented in the longitudinal direction of the mop holder 1. Fig. 3 instead shows a transversal orientation of the folding axis 3 and the edge sections (not shown in Fig. 3) are on the transversal edges of the wings 4, 4'.

The wings 4, 4' form wiping surfaces for cooperation with the mop cover 2 in an operative position of the wings 4, 4'. In Fig. 1 the operative position of the wings 4, 4' is shown. It is the extended, straight position so that the mop cover 2 has one large surface oriented towards the surface to be cleaned. This is the general system described e.g. in US 4,881,290 A. However, there are two-sided mop covers having two sides alternately presented to the surface to be cleaned. This is disclosed in US 5,864,914 A. The operative position of the wings 4, 4' is not the straight or extended position but a fold up position instead.

A handle holder 7 is hinge-connected to the wings 4, 4'. In the present embodiment the handle holder 7 is provided as a socket for a handle 8 indicated in Fig. 1 and 2. The handle holder 7 provides a universal joint 9 between the handle 8 and the mop holder 1 so that the mop holder 1 can be moved about the surface to be cleaned in all directions. A universal joint, however, is not necessary for the invention, however the usual equipment of such mop holder 1.

The connection of the handle holder 7 to the wings 4, 4' is done by means of a swiveling means 10. Here this swiveling means 10 forms exactly one folding and swiveling axis 3 oriented in the longitudinal direction of the mop holder 1. However, as seen in Fig. 3, a similar system can be provided for a transversal orientation as well.

Now, there is provided a detachable connecting means 11 for fixedly holding the wings 4, 4' in their operative position shown in Fig. 1. Further provided is a detaching means 12 to release the wings 4, 4' from their operative position into a foldaway release position shown in Fig. 2.

In the present embodiment, the handle holder 7 is attached to the swiveling means 10 so that the longitudinal axis 7' of the handle holder 7 with the handle 8 attached to it in an upright position thereof is oriented essentially perpendicular to the folding axis 3 of the wings 4, 4'. The detaching means 12 is positioned on the handle holder 7 and interacts with the wings 4, 4' in a way that abruptly twisting the handle 8 about the longitudinal axis 7' thereof detaches the detachable connecting means 11 due to the inertia of the wings 4, 4'. Comparison of Fig. 2 with Fig. 1 easily reveals this operation.

This operation allows removal of the mop cover 2 from the mop holder 1 touch free just by abruptly twisting the handle 8 so that the mop cover 2 falls down from the now released wings 4, 4'. Re-attachment of the mop cover 2 to the frame 3 of the mop holder 1 is simply done by positioning the wings 4, 4' in their release position on top of the mop cover 2 and then pushing down the handle 8 so that the wings 4, 4' with their edge sections are inserted into the corresponding pockets on top of the mop cover 2 and are fixed in their operative position by the connecting means 11.

Instead of using insertion pockets on the upper side of the mop cover 2 prior art discloses, at least in connection with a specific design of the wings 4, 4' of the frame 3, that holding strips can be used as well (WO 03/020100 A).

In the first and second embodiment, the handle holder 7 is attached to the swiveling means 10 by means of a swivel head 13. This swivel head 13 is indicated in a dashed line in Fig. 1 and 2. In Fig. 3, which shows an enlarged, partly sectional view of a second embodiment, the swivel head 13 can be seen more distinctly. The swivel head 13 provides a swiveling axis oriented essentially perpendicular to the swiveling axis provided by the swiveling means 10.

Fig. 1 and 2 show an embodiment of the mop holder 1 where the swiveling means 10 forms exactly one axis 3 for both wings 4, 4' and the handle holder 7

alike. There is exactly one swiveling pin extending through the complete joint. However, there is still a hinge plate 14 as a basis for the swiveling means 10, here providing the swivel head 13 for the lower section of the handle holder 7. Here, the swiveling means 10 is part of the hinge plate 14. However, a hinge plate 14 is necessary only if a number of at least two folding axes are provided, because then the hinge plate 14 provides the connection between the folding axes and the swiveling axis (see the construction in US 5,864,914 A).

In the present embodiment the construction of the mop holder is such that the wings 4, 4' are provided with upwardly extending detaching sections 15, 15'. The detaching sections 15, 15' here additionally provide a basis for the connecting means 11. For example, one detaching section 15 has a magnet and the other detaching section 15' has a metal plate as counter-plate for the magnet. Equally, the detaching sections 15, 15' can provide mechanical snap-in elements or corresponding Velcro-elements. A magnet is indicated in Fig. 2.

In the present embodiment there are two sets of detaching sections 15, 15' on both sides of the handle holder 7. The construction is such that the detaching means 12 extends between the detaching sections 15, 15' of the wings 4, 4' in their operative position. So, one end of the detaching means 12 on the left side of the handle holder 7 in Fig. 1 turns the detaching section 15' of the rear wing 4' backwards, whereas the other one on the right side, which can be seen in Fig. 1 and 2, turns the detaching section 15 of the front wing 4. This provides the necessary opening force on the wings 4, 4', disconnecting the connecting means 11.

As explained before, a magnetic detachable connecting means 11 is preferable in particular with the detaching sections 15, 15'. Further, as explained before, the detaching sections 15, 15' will preferably be one-piece plastic parts unitarily formed with the wings 4, 4' from plastics.

Fig. 2 shows that, here, the wings 4, 4' in the release position are kept at a specific angle, here, at an angle of about 90° between the wings 4, 4' by abutment means 17 integrated into the one-piece plastic material of the wings 4, 4' positioned on the corresponding detaching sections 15, 15'.

Fig. 3 shows an exemplary embodiment of a mop holder 1 with transversal direction of the folding axis 3. Here a swivel head 13 and a detaching means 12 are integrated into the system without a separate hinge plate.

Fig. 4 shows a third embodiment of the inventive mop holder 1. The mop cover 2 is held between gripping sections of the wings 4, 4' as described in a co-pending application (PCT/EP 2004/ .....; attorney's reference 03.1461). The essential difference is that here, the swiveling means 10 comprises one swiveling pin oriented essentially parallel to the folding axis 3 in the operative position of the wings. This swiveling pin runs in corresponding bearings 16 at the wings 4, 4', however, the bearings 16 are closed only in the operative position of the wings 4, 4'. This swiveling pin is simultaneously the detaching means 12 operative between the wings 4, 4'.

Fig. 4 shows the release position. In this position, the swiveling pin, which simultaneously forms the detaching means 12 is not held by the bearings 16 at both wings 4, 4', but can be moved relative to the wings 4, 4'. However, closing of the wings 4, 4' to their operative position is possible only with the swiveling pin/ detaching means 12 in position within the bearings 16.

From the operative position of the mop holder 1, it is the same operation as explained before that abruptly twisting the handle 8 about the longitudinal axis 7' thereof separates the two wings 4, 4' and detaches the detachable connecting means 11 due to the inertia of the wings 4, 4'.

From the above-explained third embodiment, it can be obtained that the detaching sections 15, 15' are not necessarily related to the connecting means 11. In Fig. 4, the connecting means 11 can be seen completely separate from the detaching means 12, both acting on the wings 4, 4' directly.

Claims:

1. Mop holder for mounting a mop cover, comprising
at least two elongated wings (4, 4') hinge-connected together either directly forming a single folding axis (3) or indirectly forming more than one folding axis, wherein the wings (4, 4') form wiping surfaces for cooperation with a mop cover (2) in an operative position of the wings (4, 4'),
a handle holder (7) and/or handle (8) hinge-connected to the wings (4, 4') by means of a swiveling means (10), defining a swiveling axis (10'), which extends essentially parallel to the folding axis (3) or folding axes of the wings (4, 4') at least in the operative position of the wings (4, 4'),
a detachable connecting means (11) for fixedly holding the wings (4, 4') in their operative position, and
a detaching means (12) for detaching the wings (4, 4') to release them into a fold-away release position,
characterized in that
the handle holder (7) or the handle (8) is attached to the swiveling means (10) so that the longitudinal axis (7') of the handle holder (7) and/or the handle (8) in an upright position thereof is oriented essentially perpendicular to the folding axis (3) or folding axes of the wings (4, 4'),
the detaching means (12) is positioned on the handle holder (7) or the handle (8) and
the detaching means (12) interacts with the wings (4, 4') in a way that abruptly twisting the handle holder (7) and/or the handle (8) about the longitudinal axis (7') thereof detaches the detachable connecting means (11) due to the inertia of the wings (4, 4') and releases the wings (4, 4').

2. Mop holder according to claim 1, characterized in that
the handle holder (7) or the handle (8) is attached to the swiveling means (10) by means of a swivel head (13), which has a swiveling axis essentially perpendicular to the swiveling axis (10') of the swiveling means (10).

3. Mop holder according to claim 1 or 2, characterized in that
the wings (4, 4') are provided with preferably upwardly extending detaching sections (15, 15') and

the detaching means (12) comprises at least one detaching element extending between the detaching sections (15, 15') of the wings (4, 4') in their operative position.

4. Mop holder according to claim 3, characterized in that
the detachable connecting means (11) is integrated into the detaching sections (15, 15') of the wings (4, 4').

5. Mop holder according to claim 3 or 4, characterized in that
the wings (4; 4') and the corresponding detaching sections (15; 15') are each made as a one piece member from plastics.

6. Mop holder according to any one of the preceding claims, characterized in that
the swiveling means (10) forms exactly one folding and swiveling axis (3) for both wings (4, 4') and the handle holder (7) or handle (8).

7. Mop holder according to any one of the preceding claims, characterized in that
the swiveling means (10) is part of a hinge plate (14).

8. Mop holder according to claim 1, characterized in that
the swiveling means (10) comprises at least one swiveling pin oriented essentially parallel to the folding axis (3) or folding axes in the operative position of the wings (4, 4'), and corresponding bearings (16) at the wings (4, 4').

9. Mop holder according to claim 8, characterized in that
the detaching means (12) is provided by the swiveling pin of the swiveling means (10).

10. Mop holder according to any one of the preceding claims, characterized in that
the folding axis (3) or axes is/are oriented in the longitudinal direction of the mop holder or is/are oriented in the transversal direction of the mop holder.

11. Mop holder according to any one of the preceding claims, characterized in that
the detachable connecting means (11) are magnetic connecting means.

12. Mop holder according to any one of the preceding claims, characterized in that
the wings (4, 4') in their release position are kept at a specific angle, preferably an angle of about 90°, between the wings (4, 4') by abutment means (17).

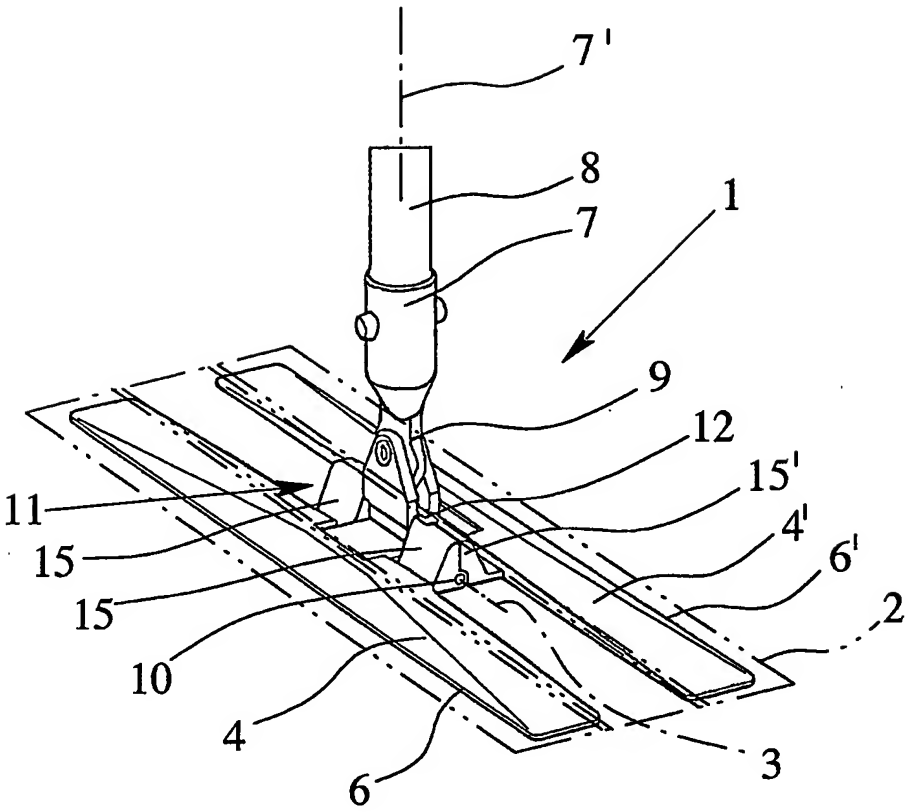

Fig. 1

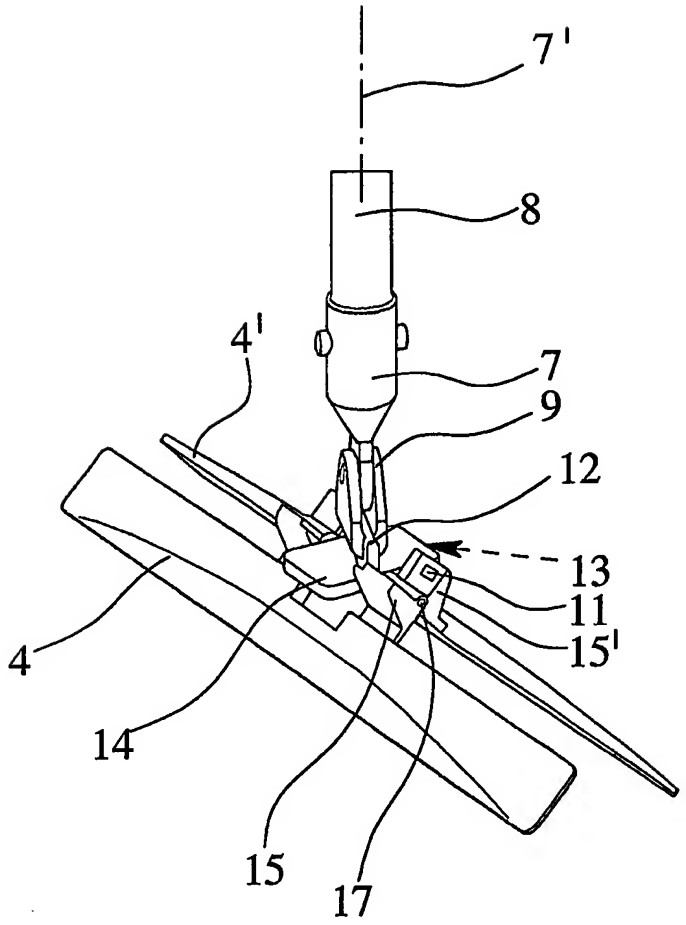

Fig. 2

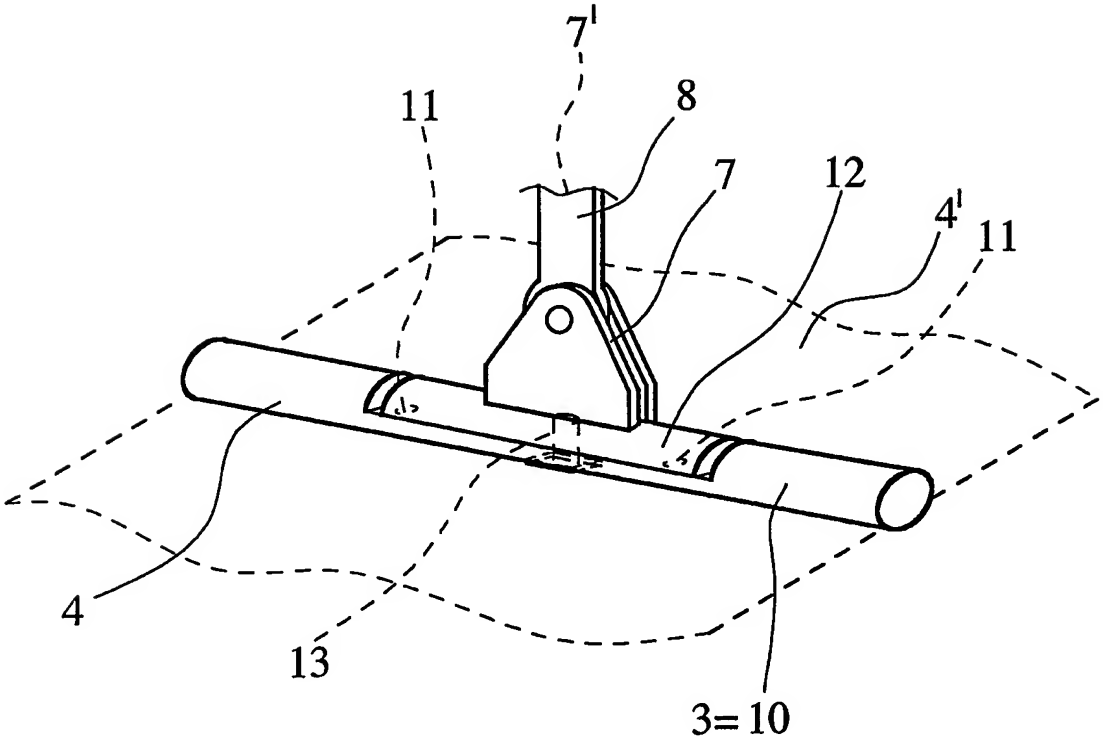

Fig. 3

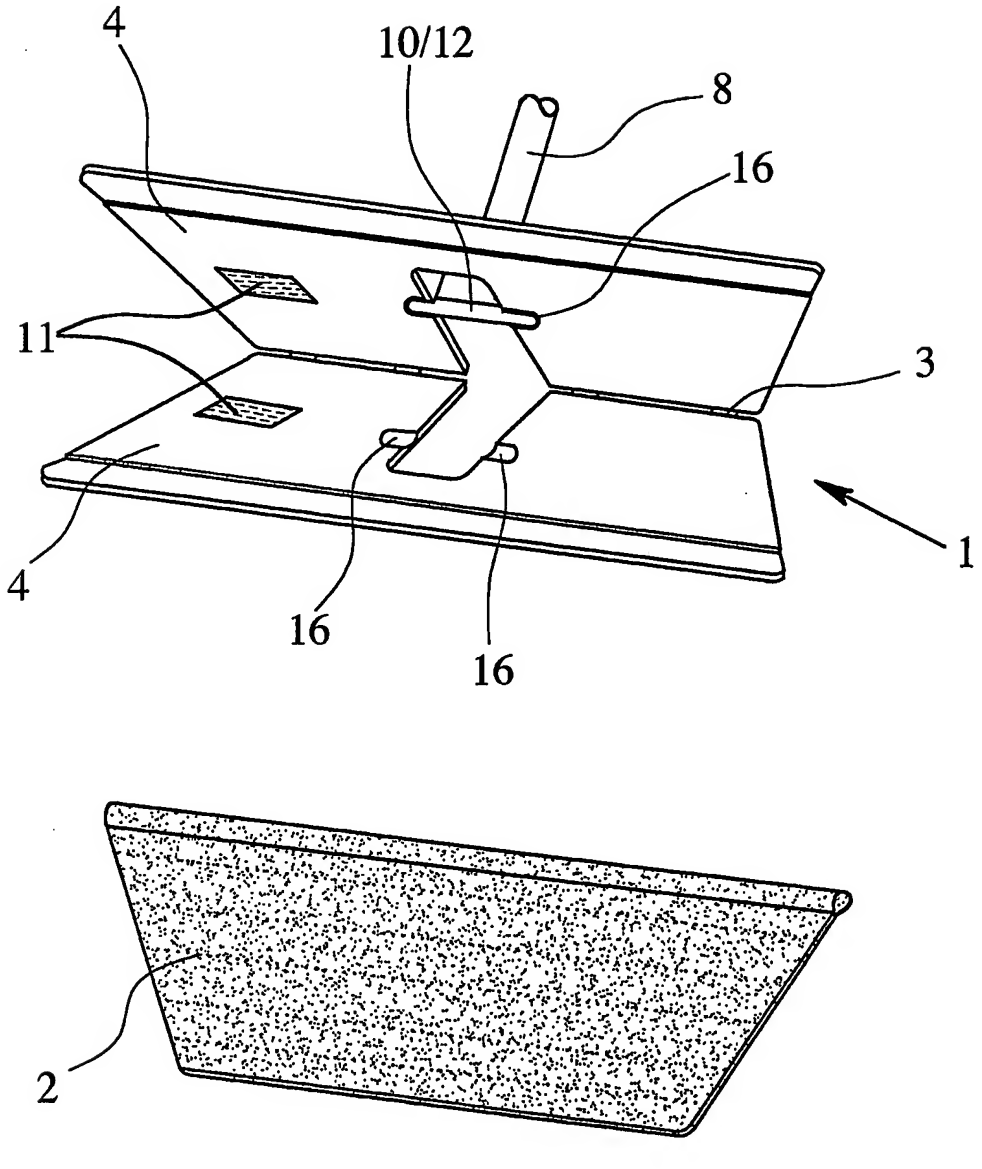

Fig. 4

INTERNATIONAL SEARCH REPORT

International Application No
PCT/EP2004/007008

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 A47L13/258

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 A47L

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)
EPO-Internal, WPI Data, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	DE 25 51 678 A1 (NWG NORD-WEST GEBAEUDEREINIGUNG GMBH & CO KG; NWG NORD-WEST GEBAEUDERE) 2 June 1977 (1977-06-02) page 4, paragraph 4 - page 5, paragraph 1 page 8, paragraph 3 - page 9, paragraph 1 page 9, paragraph 5 - page 10, paragraph 1; figures 4-6	1-10,12
Y		11
Y	DE 34 11 858 A1 (HENKEL KGAA; HENKEL KGAA, 4000 DUESSELDORF, DE) 1 August 1985 (1985-08-01) cited in the application page 9, line 15 - line 16	11

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[X] Further documents are listed in the continuation of box C.

[X] Patent family members are listed in annex.

° Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

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"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
28 February 2005	09/03/2005

Name and mailing address of the ISA	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL – 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax (+31-70) 340-3016	Papadimitriou, S

INTERNATIONAL SEARCH REPORT

International Application No
PCT/EP2004/007008

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	EP 0 249 353 A (SCOT YOUNG SERVICE SYSTEMS LIMITED; SCOT YOUNG RESEARCH LIMITED) 16 December 1987 (1987-12-16) column 3, line 35 - line 39 column 4, line 7 - line 11	
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INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No
PCT/EP2004/007008

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